



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re: Applicant: Rudolf BOHDAL
Application No: 10/564,076
Title: **METHOD FOR MAKING GAS TURBINE
ELEMENTS AND CORRESPONDING ELEMENT**

Filed: January 10, 2006
Art Unit: 3745
Examiner: Sean Jerrard YOUNGER
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P.O. Box 1450
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APPELLANTS' REPLY BRIEF UNDER 37 C.F.R. §41.41

Sir:

Appellants submit this Reply Brief for consideration of the Board of Patent Appeals and Interferences (the “Board”) in response to the Examiner’s Answer dated November 29, 2010 and in support of their appeal of the Final Rejection dated January 6, 2010. Appellants respectfully reassert each of the arguments asserted in Appellants’ Brief dated August 9, 2010, and provide herein only a rebuttal of several of the arguments and in the Examiner’s Answer. Appellants also address herein the New Grounds raised in the Examiner’s Answer. No fee is believed required. If any fee is required at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

ARGUMENTS

The following additional remarks are submitted for consideration by the Board under 37 CFR §41.41.

Rejection Under 35 U.S.C. § 103(a)

Claims 17 to 19, 29, 31 to 33 and 37 to 42 were rejected under 35 U.S.C. §103(a) as being anticipated by U.S. Patent No. 5,733,498 (Kawakami et al.) in view of U.S. Patent No. 2,796,660 (Irmann).

Claim 17 recites:

manufacturing a vane segment from the plurality of vanes via powder metallurgy injection molding, the step of manufacturing including the steps of:

mixing a metal powder having a binding agent to form a homogeneous material, the metal powder accounting for at least 50% of the homogeneous material;

forming at least one molded body from the homogeneous material via injection molding, subjecting the at least one molded body to a debinding process, and compressing the at least one molded body via sintering to form the vane segment.

Regarding the Examiner's arguments at paragraphs 14 and 15, as admitted by the Examiner, Kawakami is directed to sintered silicon nitride bodies that have small amounts of metal, and certainly not close to 50% of any homogeneous material. The whole purpose of Kawakami is to avoid large amounts of metal and produce a *ceramic sintered body*. See col. 3, lines 8 to 19 for example and column 4, line 51 et seq. *Kawakami teaches away from using metal powders accounting for 50% of the body and is fully concerned with silicon nitride bodies. When Kawakami discusses metal powder it is at a percentage of less than 10% and only as a sintering aid. See Col. 14, lines 54 to 64.*

The teachings of Irmann have nothing to do with silicon nitride and are concerned with admittedly predominantly aluminum elements. The citation to "hot compressed in a shaping mold" in the Examiner's Answer at paragraph 14 has nothing to do with injection molding. In fact, this teaching addresses the "compressing" step of claim 17, *which is a completely different step*.

Perhaps as important as the Kawakami teaching away and the fact that Irmann has nothing to do with injection molding, the reason or motivation given by the Examiner to combine the references is simply hindsight and not based on any *factual* basis. The Examiner states “It would have been obvious to modify the method of Kawakami et al by using a homogeneous powder of at least 50% metal, rather than silicon nitride, because the materials were known for use in the powder metallurgy process and could have been implemented by one of ordinary skill with predictable results.” See paragraph 2 of Examiner’s Answer.

However, there is absolutely no factual basis for this assertion in direct contradiction of the Examination Guidelines Issued by the Office on September 1, 2010. What is the factual basis for the statement that the materials “could have been implemented by one of ordinary skill with predictable results”? There is none, and it would not have been predictable in view of any of the cited art to injection mold the metal powder homogeneous material as claimed.

The Guidelines state clearly: “It remains Office policy that appropriate factual findings are required in order to apply the enumerated rationals properly. If a rejection has been made that omits one of the required factual findings” the rejection must be withdrawn.

Reversal of the rejections to claims 17 to 19, 29, 31 to 33 and 37 to 42 under 35 U.S.C. §103(a) is respectfully requested.

Claims 37, 38 and 39: Argued Separately

With further respect to claims 37, 38 and 39, the metal powder of any proposed combination of Kawakami and Irmann does not comprise from 50 to 70% of the homogeneous material as claimed, but rather 100 percent or close to 100%. A range with an upper end does not permit more than that amount.

Withdrawal of these rejections is respectfully requested for this reason as well.

New Ground of Rejections

New grounds were given, a clear recognition that the Kawakami/Irmann combination has no factual support. These new grounds however are even more flawed.

Claims 17, 29, 33 and 37 to 39 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kawakami et al.

Kawakami teaches away from using metal powders accounting for 50% of the body and is fully concerned with silicon nitride bodies. When Kawakami discusses metal powder it is at a percentage of less than 10% and only as a sintering aid. See Col. 14, lines 54 to 64.

The statement "It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the method of Kawakami et al by using a mixture of 50% to 70% of metal powder, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimal or workable ranges involves only routine skill in the art" (Examiner's Answer at paragraph 12) simply disregards the teaching of Kawakami. Kawakami specifically teaches away from the claimed ranges and wants a predominantly (90% or more) green body of silicon nitride. *The metal in Kawakami is not to constitute most of the body, but used solely as a sintering aid. See col. 14, lines 54 to 64.* Thus one of skill in the art would not have sought to go above the ranges addressed in Kawakami and certainly not to more than 50%. At that point the metal powder clearly is not a sintering aid, but the main component of the body.

There also, as required by the September 1, 2010 Guidelines, simply no *factual* support in any prior art or the Examiner's Answer to support the basis that discovering the 50 to 70% range would involve routine skill in the art. This bald assertion is based on the Applicant's own disclosure, and Kawakami actually teaches away from such a range.

Reversal of the rejections to claims 17, 29, 33 and 37 to 39 under 35 U.S.C. §103(a) is respectfully requested.

Favorable consideration of this Reply Brief is respectfully requested.

Respectfully submitted,
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